



# 深圳市凯越翔电子有限公司

## 声表谐振器规格书

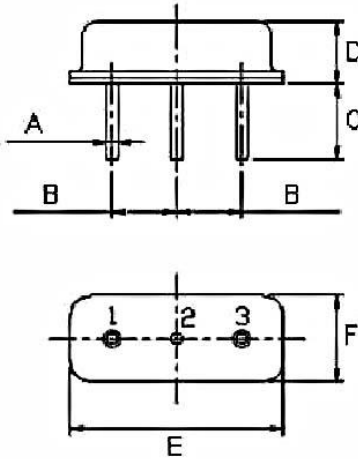
产品名称:	声表谐振器
产品型号:	D11/433.92M
产品参数:	± 75KHZ
原厂型号:	KD143392
凯越翔技术部:	董宗全

### 客户确认栏

认 证 印 章 年 月 日	负 责 人 印 章 年 月 日
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The YRR433 is a true one- port , surface- acoustic- wave( SAW) resonator in a low-profile D -11 case. It provides reliable , fundamental- mode , quartz frequency stabilization of fixed- frequency transmitters operating at 433.92 MHz.

**1. Package Dimension (D -11)**



Pin	Connection
1	Input
2	Case Ground
3	Output

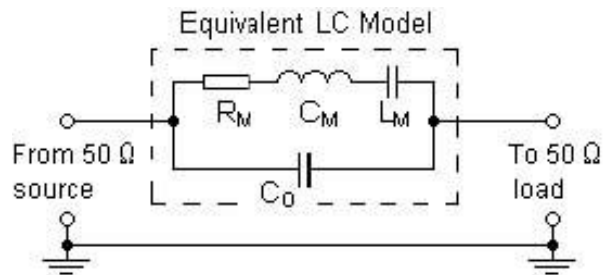
Dimension	Data (unit: mm)
A	0.45±0.05
B	2.54±0.06
C	3.0±0.20
D	3.0 max
E	8.36±0.08
F	3.45±0.08

**2. Marking Circuit**

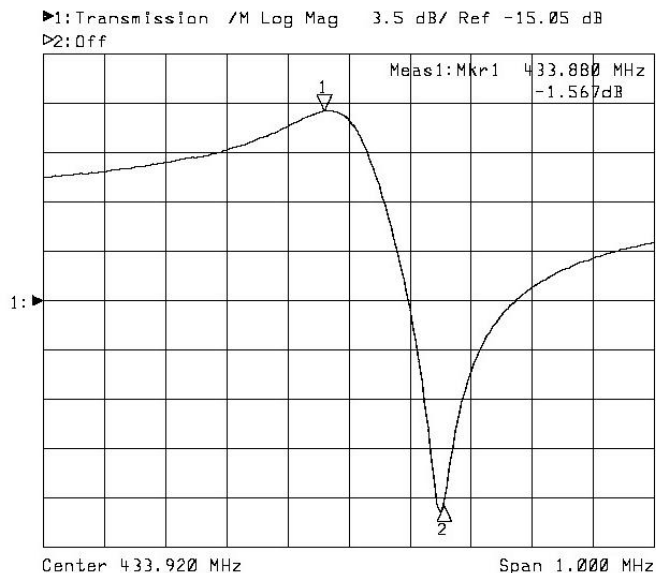
**R433**

Color: Black or Blue

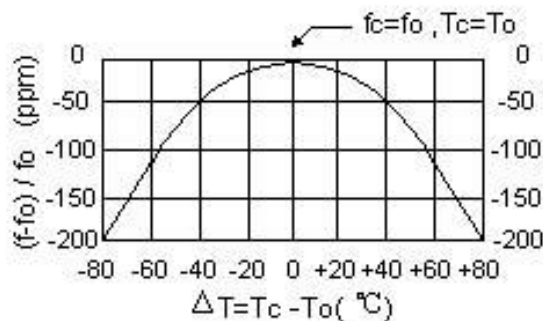
**3. Equivalent LC Model and Test**



### 5. Typical Frequency Response



### 6. Temperature Characteristics



The curve shown above accounts for resonator contribution only and does not include oscillator temperature characteristics.

### 7. Performance

#### 7-1. Maximum Rating

Rating	Value	Units
CW RF Power Dissipation	+10	dBm
DC Voltage Between Any Two Pins	±30V	VDC
Case Temperature	-20 to +70	°C

#### 7-2. Electronic Characteristics

Characteristic		Sym	Minimum	Typical	Maximum	Units
Center Frequency (+25°C)	Absolute Frequency	$f_c$	433.845		433.995	MHz
	Tolerance from 433.920 MHz	$\Delta f_c$		±75		kHz
Insertion Loss		$I_L$		1.5	1.8	dB
Quality Factor	Unloaded Q	$Q_U$		15974		
	50 Ω Loaded Q	$Q_L$		1900		
Temperature Stability	Turnover Temperature	$T_o$	25	40	55	°C
	Turnover Frequency	$f_o$		$f_c$		kHz
	Frequency Temperature Coefficient	FTC		0.037		ppm/°C <sup>2</sup>
Frequency Aging Absolute Value during the First Year		$ f_A $		≤10		ppm/yr
DC Insulation Resistance Between Any Two Pins			1.0			MΩ
RF Equivalent RLC Model	Motional Resistance	$R_M$		19	23	Ω
	Motional Inductance	$L_M$		79.137		μH
	Motional Capacitance	$C_M$		1.8019		fF
	Pin 1 to Pin 2 Static Capacitance	$C_o$		1.9		pF

**CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.**

**Notes:**

1. Frequency aging is the change in  $f_c$  with time and is specified at  $+65^\circ\text{C}$  or less. Aging may exceed the specification for prolonged temperatures above  $+65^\circ\text{C}$ . Typically, aging is greatest the first year after manufacture, decreasing in subsequent years.
2. The center frequency,  $f_c$ , is measured at the minimum insertion loss point,  $IL_{\text{MIN}}$ , with the resonator in the  $50\ \Omega$  test system ( $VSWR \leq 1.2: 1$ ). The shunt inductance,  $L_{\text{TEST}}$ , is tuned for parallel resonance with  $C_0$  at  $f_c$ .
3. Typically, equipment utilizing this device requires emissions testing and government approval, which is the responsibility of the equipment manufacturer.
4. Unless noted otherwise, case temperature  $T_c = +25^\circ\text{C} \pm 2^\circ\text{C}$ .
5. Derived mathematically from one or more of the following directly measured parameters:  $f_c$ ,  $IL$ , 3dB bandwidth,  $f_c$  versus  $T_c$ , and  $C_0$ .
6. Turnover temperature,  $T_o$ , is the temperature of maximum (or turnover) frequency,  $f_o$ . The nominal frequency at any case temperature,  $T_c$ , may be calculated from:  $f = f_o [1 - FTC(T_o - T_c)^2]$ . Typically, *oscillator*  $T_o$  is  $20^\circ\text{C}$  less than the specified *resonator*  $T_o$ .
7. This equivalent RLC model approximates resonator performance near the resonant frequency and is provided for reference only. The capacitance  $C_0$  is the static (nonmotional) capacitance between Pin 1 and Pin 2 measured at low frequency (10 MHz) with a capacitance meter. The measurement includes parasitic capacitance with floating case. For usual grounded case applications (with ground connected to either pin 1 or pin 2 and to the case), add approximately 0.25pF to  $C_0$ .

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